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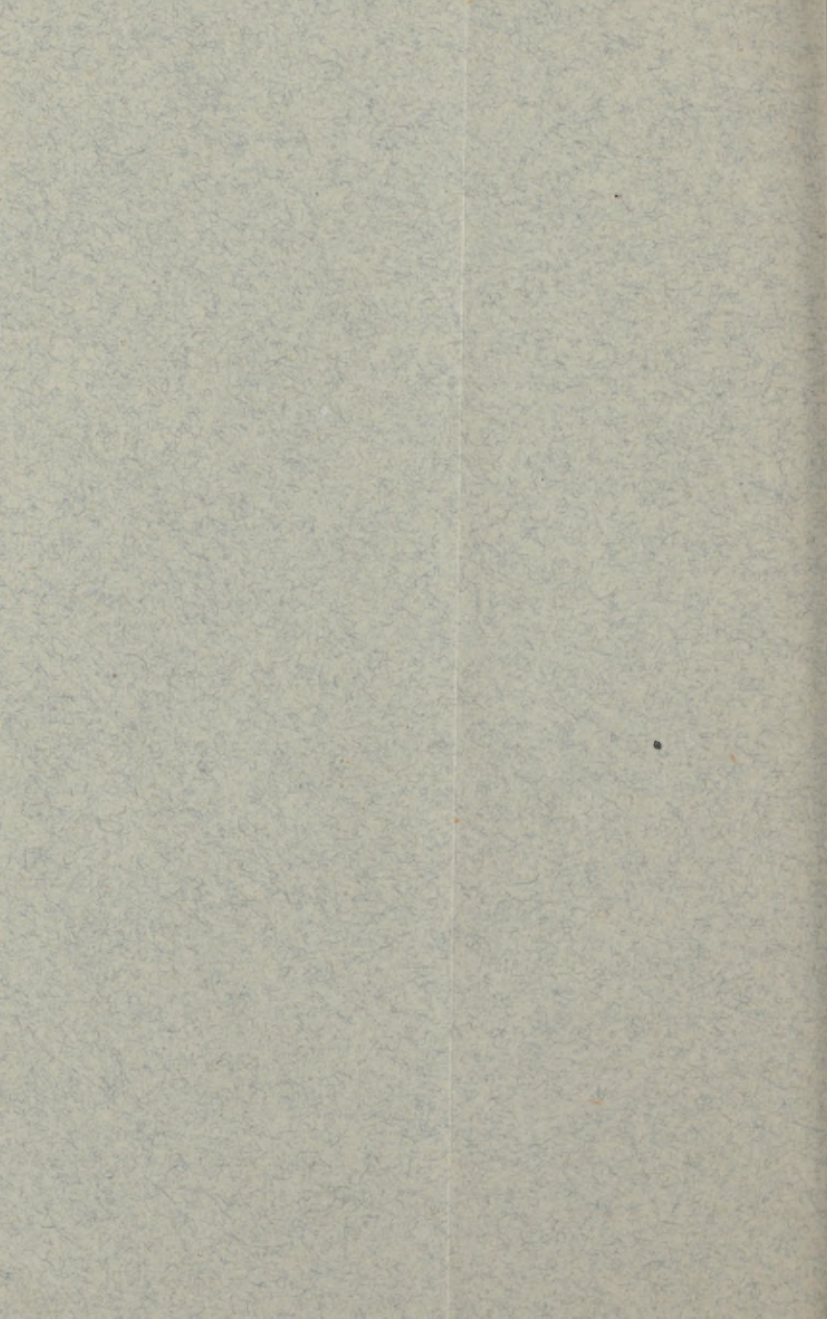
IS
ELECTROLYSIS A FAILURE
IN THE TREATMENT OF
URETHRAL STRICTURES

BY
ROBERT NEWMAN, M.D.
NEW YORK



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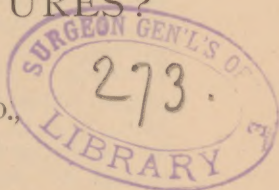
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THE electrolytic action (electrolysis) of a galvanic current on animal tissue is an undisputed chemical fact. Its application in the treatment of urethral strictures, practised by me for the past eighteen years, has been recognized almost universally, and followers of my method report success in thousands of cases. Good results have been reported by eminent medical men, *e.g.*, Belfield, Hutchinson, Farrand, R. Morris, Prince, Frank, Glass, Martin, and a number of others. We may add to these recent reports of distinguished surgeons of London, for example, W. E. Steavenson and W. Bruce Clark. A method so favorably spoken of naturally had many imitators, and it is not surprising that amongst these were many medical men illy prepared to do the operation successfully and totally ignorant of the proper procedure; their dominating idea being that any electrical instrument, used in any arbitrary manner, ought to give

brilliant results, and failing in accomplishing these, they condemn and ridicule all reported cures by expert and careful operators.

In former papers on this subject I have tried to point out that failure in the cure of any given urethral stricture by galvanism was due to a number of causes, among the most frequent of which were the following: 1, Incompetence of operator; 2, mismanagement of the whole case; 3, wrong diagnosis; 4, faulty instruments.

I. *Incompetence of operator.*—To succeed, the operator must be an accomplished surgeon and electrician, knowing the difference between a galvanic and an induced current, in the first place; and, secondly, having some knowledge of the different results obtained by each current on animal tissue. An accomplished surgeon must he be, so as to be able to lightly introduce instruments into a diseased urethral canal and safely guide them through all parts of an abnormal or pathological passage.

The science of electricity belongs to the elementary course taught in our literary schools, and every student of medicine is expected to know all about the different actions of divers batteries. No one is competent to discuss what electrolysis might do and what it might not do unless he can tell an induced current from a galvanic circuit. Alas! how many of our medical men know when either current is indicated in the treatment of any disease requiring electricity? Hear what a professor of medicine in a provincial town says:

"Our students do not need and *would not understand* the higher and special branches of medicine, for they have no preliminary education. They come from their villages, some direct from the ploughshare; they go back again to their villages, where it is sufficient to treat fevers, zymotic diseases, bowel complaints, and to manage confinements. These branches they are taught, and if they need more let them come to us for consultations and operations."

This is one reason why many medical men look upon the treatment of disease by electricity as a sort of charlatanism—they do not know what it is because they have not been taught it at their schools. Now, do our best medical colleges in large cities give their students any better chance? I am not aware that any college has ever appointed a professor to the chair of electrical therapeutics, or that even electrolysis has been practically taught anywhere. As a curious fact I may mention, however, that the only professor of surgical electricity can be found in the Homœopathic College, in New York.

I will append the gist of a few letters that reach me almost daily, in support of my statement that the greater part of our profession are in ignorance of the uses, and even of the definition, of electrical currents.

Letter 1 asks: "How many cells shall I use of an eighteen-cell Kidder battery for *curing* stricture of the urethra by electrolysis, and how apply the bougies?"

Letter 2 writes: "How many cells of the battery do you generally use, and what size of a bougie?"

Letter 3 wants to know if the gravity battery is not best, and if he may use as an electrode a *rubber* catheter.

Letter 4 insists on using an electrical machine *to turn with a crank*, and as his two hands are engaged thereby, thinks one pole in the urethra is sufficient, asking, of *what use is the positive pole*, when the negative does the work?

Letter 5 reports that he has used such strong currents, that the patient *screamed with pain*, and notwithstanding the result was not satisfactory.

Some of these would-be operators do not even moisten the sponge, others *oil* their electrodes. I am surprised that even a reputable text-book on electricity advises to use the *positive* pole at the seat of the stricture, which must inevitably ruin the patient's urethra.

In my former articles, the *modus operandi*, how to use the galvanic current, the application of the poles, the strength of current, the duration of the *séance*, the inter-

vals of application, and all minutiae have been so exactly described that such ludicrous questions not only show the ignorance of the inquirer, but prove that he has not even intelligently read my articles. He has simply understood, in a misty way, that electricity can be used for curing strictures, and being disappointed at his want of success insists that the method is a delusion and a snare.

I cannot refrain here from mentioning a letter just received by a gentleman in Canada, who has studied electricity and its application in medicine and strictures.

He writes : " I meet with a great deal of scepticism and ridicule from my professional brethren. A professor in a medical college here walked up to me in a drug store and ridiculed my attempt to electrolyze some enlarged glands of the neck in a young man, and flauntingly offered to bet me \$50 to \$5 that I could not cure him, or do him any good. Nevertheless the neck is improving markedly. A professor of therapeutics argued with me that all batteries were alike, and the little old-fashioned crank-machine as good as any, but that they all did more harm than good. The professor of medical jurisprudence took a case away from me, telling the patient that electricity would do more harm than good. The professor of surgery asked me how I knew that destruction of tissue takes place in electrolysis," etc.

This ignorance and blind opposition is not only confined to teachers of medicine in Canada, but, in the face of daily accumulating facts, there are men in high standing in the United States who oppose the progress of electrolysis with an obstinate ardor that borders on vindictiveness. Thus we see the first cause of failure : " Incompetence of the operator."

II. *Mismanagement*.—Others, though having enough knowledge of the subject, will fail on account of carelessness : they do not give time to the details, are without any perseverance, and easily become discouraged if their

first trials do not give them a perfect result. The following extract is from the letter of a prominent physician :

"April 10, 1885.—Assisted by Dr. B., who loaned me his battery, I pass a No. 9 (English) electrode through the stricture, but the patient was unable to bear the pain, even with only six or seven cells. Ether was administered, and with eleven cells I passed a No. 9 steel sound into the bladder.

"April 12th.—Passed a No. 8 (English) sound, this made the stricture bleed.

"April 13th.—Patient complained of chills and fever ; ordered quinine. (N. B.—This was an attack of urethral fever, which passed away in a few days.)

"May 12th.—While absent from the city patient had an attack of retention, which was relieved by a catheter.

"May 22d.—Passed a No. 8 sound, much to patient's surprise. The stricture bled again.

"May 23d.—Electrolysis with ether as before. No. 10 was passed into the bladder, but only after the steady use of twelve cells for a long time.

"May 28th.—Passed No. 10 English catheter, drew off urine, followed by another chill.

"May 29th.—Still experiences some pain on micturition."

The doctor, in treating the foregoing case, violated nearly every rule which would lead to success.

First, he passed an electrode which gave pain ; pain should not be given under any circumstances. If soreness is already present this is to be removed by appropriate remedies.

Second, he did wrong to give an anæsthetic, which follows from the foregoing—where there is no pain an anæsthetic is not required. The patient should be able to express his feeling as a partial guide to the operator.

Third, the current used was entirely too strong in this case. Eleven cells may be used perhaps in exceptional cases, where the battery fluid is weak and cells and elements small. Six cells would have been fully sufficient.

Fourth, more than one electrode was passed at a single sitting. The invariable rule is that no two instruments should be passed, even for several days after the operation.

Fifth, two days later an English sound was passed, making the stricture bleed, which showed that damage was being done to the urethra. Why No. 8 was selected after No. 9 had passed two days previously I cannot understand. The object is to enlarge the calibre of the urethra, during each subsequent sitting. This treatment also brought on two attacks of urethral fever, which will never happen with proper care.

Sixth, instead of allaying pain and irritation the doctor made matters worse, by using the sound and producing more irritation.

Notwithstanding all this mismanagement the patient and doctor were pleased with the improvement. One year later the operator wrote me, however, that the case did not turn out as well as he could have wished. He acknowledged his errors and reported other more successful cases.

I will conclude this article with some rules, as a safe guide for practitioners who wish to adopt the treatment of electrolysis in stricture of the urethra, which will also serve as answers to numerous questions received from correspondents.

1. Any good galvanic battery will do which has small elements and is steady; the twenty-cell Drescher battery, carbon and zinc, is an excellent instrument, sufficient, particularly, for the beginner.

2. The fluid for the battery ought not to be used too strong.

3. Auxiliary instruments, as galvanometer, etc., are important to the expert, but not necessary for the beginner.

4. For the positive pole a carbon electrode is used, covered with sponge, moistened with hot water, and held firmly against the cutaneous surface of the patient's hand, thigh, or abdomen.

5. For the absorption of the stricture the *negative* pole must be used.

6. Electrode bougies are firm sounds insulated with a hard-baked mass of rubber ; the point is a metal bulb, egg-shaped, which is the acting part in contact with the stricture.

7. The curve of the bougie is short ; large curves are mistakes.

8. The plates must be immersed in the fluid before the electrodes are placed on the patient, and raised again after the electrodes have been removed.

9. All operations must begin and end, while the battery is at zero, increasing and decreasing the current slowly and gradually by one cell at a time, avoiding any shock to the patient.

10. Before operating, the susceptibility of the patient to the electric current should be ascertained.

11. The problem is to absorb the stricture, not to cauterize, burn, or destroy tissues.

12. *Weak currents at long intervals.*

13. In most cases a current of six cells, or from two and a half to five milliamperes, will do the work, but it must be regulated according to the work to be done.

14. The séance should be at intervals, not too frequent in succession.

15. The best position for the patient to assume during the operation is that which is most comfortable for himself and the operator. I prefer the erect posture, but the recumbent or others may be used.

16. Anæsthetics I like to avoid ; I want the patient conscious, so that he can tell how he feels.

17. Force should never be used ; the bougie must be guided in the most gentle way ; the electricity alone must be allowed to do the work.

18. During one séance two electrodes in succession should never be used.

19. All strictures are amenable to the treatment by electrolysis.

20. Pain should never be inflicted by the use of electrolysis; therefore it should not be applied when the urethra is in an acute, or even subacute, inflammatory condition.

III. *A mistaken diagnosis* is another fruitful source of disappointment with many. It stands to reason that where no stricture is present, but some other disease of the urethral mucous membrane, and this is energetically treated with the galvanic current, no cure can result, and even some harm done. Still some have reported unfavorable to the efficiency of the current where there never was a stricture present. The following have been mistaken for stricture to my knowledge: Spasm of the bladder; the encroachment on the calibre of the urethra by an enlarged prostate; granulations and ulcers of the urethra; urethral abscesses, etc. Some tumor, neoplasm, or calculus may cause impediment to the flow of urine and be mistaken for stricture by the neophyte. Chancroidal and syphilitic conditions may still more complicate the diagnosis. I will give in brief one of these troublesome cases, which occurred in my own practice. Patient came from the South, entirely broken down, to be treated for stricture. Three were found, respectively 1 inch, $3\frac{1}{2}$ inches, and $6\frac{1}{2}$ inches from the meatus.

During June, 1885, his condition and general health improved under treatment. Electrolysis materially improved the two deeper-seated strictures, but the anterior one was not favorably influenced by the current, on the contrary, the induration spread toward the meatus.

July 11th.—Stricture close to meatus very much indurated, firmly matting together mucous membrane and subjacent tissues. Electrolysis was applied and succeeded in softening the tissues beyond my expectation. I was able to pass a French No. 25 well and for fifteen minutes; with six cells applied the current.

August 1st.—Stricture worse, scarcely admits No. 18 bougie, and submucous tissue hard and callous. I now put my patient on the mixed treatment, and it was aston-

ishing to see the callous appearance vanish, and now the remaining stricture was easily removed by the current.

September 26th.—No. 26 French can easily be passed. A year later re-examination proved the complete cure.

Now I could understand why a friend of mine, who was well pleased with his results in deeper-seated strictures, kept complaining to me that he did not get favorable results whenever he treated strictures situated in the immediate neighborhood of the meatus, but that they would recontract, and sometimes become worse after treatment, notwithstanding the greater care taken and my rules literally followed. Taking into consideration that this gentleman took most of his cases from the venereal class of a hospital, the solution of the difficulty was easy in the light shed on it by my own case.

These cases are not so simple as they may seem to the readers of this paper, for in many of them no secondary symptoms can be discovered, nor will the patient admit, or know of, the probability of a syphilitic infection.

IV. *Faulty instruments* certainly may become a cause of failure, though an expert operator may partly overcome this cause by the skilful handling of even rude instruments. Nevertheless, a careful man will select the best instruments as an important factor to his success. A good outfit consists of: A *galvanic* battery, with conducting wires, sponge electrodes, connecting screws, bougies à boule, and a full set of electrode bougies. The latter should have a proper curve, must be smooth and well polished, and well insulated, except at the bulb. The latter, again, must have the proper size and shape. A set of tunnelled electrodes and a few auxiliary instruments complete the set.

The electrodes may be either curved or straight, the bulbs acorn- or egg-shaped. I prefer to have them with short curves. The tunnelled electrodes are of invaluable aid in strictures of small calibre, and if used properly will make false passages a fable of the past.

For a further description of the instruments used by me, and the *modus operandi*, I refer to my former articles, particularly to *THE MEDICAL RECORD* of August 12 and 19, 1882, and to *The New York Medical Journal* of January 3, 1885. The question asked so frequently as to the number of cells used cannot be answered more definitely than the dose of morphine to be given in different diseases can be answered by any one dose. The operator must select the strength of the current for each individual case.

It would certainly be desirable to express the quantity of electricity in positive numbers, but at present we have not yet uniform and reliable galvanometers. While I advise weak currents of about six cells, this measure does not express a fixed quantity, and at best is only relatively correct. The amount of electricity to be used depends partly on the work to be done, and also on the nature of the stricture. In the practical application other facts must also be considered; for example, the state of the atmosphere, whether it be humid or dry, exercises great influence on the current. In clear, dry weather six cells may do the work for which on an unfavorable day ten or more cells would have to be used. Even if we had a universal system of measuring our currents it would not be of any practical benefit in these cases, for the exact amount a patient could endure would have to be determined afresh at every sitting by the operator, for the patient will sometimes bear much less at times, and then, again, he will not be affected by a much stronger current.

There may be other reasons of failure, but I have already touched on so many that other causes will easily suggest themselves to an intelligent surgeon.

To judge from the many causes which might operate to produce failure in this treatment, it may seem very difficult to produce many good results. Such, however, is not the case, and with care and good management

failures are the exception. All depends, as in every other operation, upon the skill and the talent that is brought to bear upon each case. In support of this let me cite a short report by a physician. He writes from Rockaway, N. J. :

"A gentleman came to me suffering from chills, following the repeated trial of passing an impervious stricture by Professor N——. He said the doctor had failed to pass any instrument whatever into the bladder, and had that day given up in disgust. I proposed electricity. He consented, and on examination I found three strictures, located deep in the urethra, two-thirds the distance to the bladder. The first sitting was prolonged to twenty minutes, a No. 8 acorn-shaped bougie being used at the seat of the stricture. I did not succeed in engaging it. One week later the seance was repeated in the same manner; did not succeed in passing to bladder. Two weeks later I used a straight tip in place of the acorn-shaped one, and succeeded in passing this through a corkscrew-shaped stricture one and three-eighths of an inch in length. At the next seance I passed readily a No. 10 bulb, acorn-shaped. Since then I have succeeded in obliterating it to such an extent that I can scarcely feel any constriction on passing the instrument. Patient has never had a chill or any untoward symptoms after any of the sittings."

The case speaks for itself. Here a professor, whose skill in using instruments is undoubted, was unable, at nine trials, to pass any instrument into the bladder, and acknowledged his incapacity to do it. By the aid of electrolysis another doctor, probably not as skilled in the manipulation of instruments in the urethra, succeeds.

Now, in conclusion, electrolysis of urethral strictures *must* and *will* succeed, in proper hands, in every case that is intelligently and judiciously undertaken. The operation itself needs a clear head, a steady hand, fingers which both see and feel, patience, and good discrimina-

tion in the application of the strength of current and length of sitting. In the strictest sense of the word, there *can be no failures* in dissolving away the dense tissue that constitutes a stricture, for electrolysis is based upon a fixed chemical action of the constant current on these animal tissues. Electrolysis cannot fail, but operators may, and do.

68 WEST THIRTY-FIFTH STREET.

